Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 – 29. (Cancelled).

30. (Currently Amended) A method for estimating (i) at least one of first and second electrical parameters and (ii) a spatial coordinate of a boundary separating first and second regions in a heterogeneous subterranean formation, the method comprising:

(a) obtaining a plurality of measured electrical signals that have penetrated the heterogeneous subterranean formation, the electrical signals representative of properties of the subterranean formation;

(b) comparing said measured electrical signals to a model that estimates said measured electrical signals as a function of the first electrical parameter, the second electrical parameter, and the spatial coordinate; and

(c) assigning a value to the first electrical parameter and the spatial coordinate such that the model generates estimated electrical signals that are substantially equal to the measured electrical signals, wherein said assigned value for the first electrical parameter is sub~~stantially~~ insensitive to the second electrical parameter.

31. (Previously Presented) The method of claim 30, wherein (c) further comprises assigning a value to the second electrical parameter.

32. (Previously Presented) The method of claim 30, further comprising:

(d) transforming the second electrical parameter into a variable that depends on the first electrical parameter.

33. (Previously Presented) The method of claim 30, wherein the first electrical parameter comprises a resistivity and the second electrical parameter comprises a dielectric constant

34. (Previously Presented) The method of claim 30, wherein the second electrical parameter comprises a resistivity and the first electrical parameter comprises a dielectric constant

35. (Previously Presented) The method of claim 30, wherein the measured electrical signals include an attenuation measurement and a phase shift measurement.

36. (Previously Presented) The method of claim 30, wherein:

the model is a transformation that maps the first and second electrical parameters and the spatial coordinate to a vector representative of the measured electrical signals; and

(c) further comprises applying an inverse of the transformation to the measured electrical signals.

37. (Previously Presented) The method of claim 30, wherein (c) further comprises applying a first mathematical transformation to the measured electrical signals and a second mathematical transformation to the estimated electrical signals generated by the model.

38. (Currently Amended) The method of claim 37, wherein the first mathematical transformation yields a result that is ~~relatively~~ sensitive to the first electrical parameter and ~~relatively~~ insensitive to the second electrical parameter;

39. (Currently Amended) The method of claim 37, wherein the second mathematical transformation yields a result that is ~~relatively~~ sensitive to the first electrical parameter and ~~relatively~~ insensitive to the second electrical parameter;

40. (Previously Presented) The method of claim 30, wherein (c) further comprises assigning values to the first electrical parameter in each of the first and second regions.

41. (Previously Presented) The method of claim 30, wherein the first region comprises an invaded zone, the second region comprises essentially virgin formation, and the spatial coordinate comprises a radius of the invaded zone.

42. (Previously Presented) The method of claim 30, wherein (a) further comprises obtaining the plurality of measured electrical signals at each of a plurality of frequencies.

43. (Previously Presented) The method of claim 42, wherein (c) further comprises assigning distinct values to the first electrical parameter at each of the plurality of frequencies.

44. (Previously Presented) The method of claim 30, wherein (b) and (c) further comprise iterative forward modeling.

45. (Currently Amended) A method for estimating first and second electrical parameters and a spatial coordinate of a boundary separating first and second regions in a heterogeneous subterranean formation, the method comprising:

(a) obtaining a plurality of measured electrical signals that have penetrated the heterogeneous subterranean formation, the electrical signals representative of properties of the subterranean formation;

(b) comparing said measured electrical signals to a model that estimates said measured electrical signals as a function of the first and second electrical parameters and the spatial coordinate; and

(c) assigning values to the first and second electrical parameters and the spatial coordinate such that the model generates estimated electrical signals that are substantially equal to the measured electrical signals, wherein said assigned value for the first electrical parameter is ~~substantially~~ insensitive to said assigned value for the second electrical parameter.

46. (Previously Presented) The method of claim 45, wherein the first electrical parameter comprises a resistivity and the second electrical parameter comprises a dielectric constant

47. (Previously Presented) The method of claim 45, wherein the measured electrical signals include an attenuation measurement and a phase shift measurement.

48. (Previously Presented) The method of claim 45, wherein:

the model is a transformation that maps the first and second electrical parameters and the spatial coordinate to a vector representative of the measured electrical signals; and

(c) further comprises applying an inverse of the transformation to the measured electrical signals.

49. (Previously Presented) The method of claim 45, wherein (c) further comprises applying a first transformation to the measured electrical signals and a second transformation to the estimated electrical signals generated by the model.

50. (Previously Presented) The method of claim 45, wherein (c) further comprises assigning values to the first and second electrical parameters in each of the first and second regions.

51. (Previously Presented) The method of claim 45, wherein the first region comprises an invaded zone, the second region comprises essentially virgin formation, and the spatial coordinate comprises a radius of the invaded zone.

52. (Previously Presented) The method of claim 45, wherein (a) further comprises obtaining the plurality of measured electrical signals at each of a plurality of frequencies.

53. (Previously Presented) The method of claim 52, wherein (c) further comprises assigning distinct values to at least one of the first and second electrical parameters at each of the plurality of frequencies.

54. (Previously Presented) The method of claim 45, wherein (b) and (c) comprise iterative forward modeling.

55. (Currently Amended) A method for estimating (i) at least one of first and second electrical parameters and (ii) a spatial coordinate of a boundary separating first and second regions in a heterogeneous subterranean formation, the method comprising:

(a) obtaining a plurality of measured electrical signals that have penetrated the subterranean formation, the electrical signals representative of properties of the subterranean formation;

(b) evaluating a model to obtain estimated electrical signals as a function of the first electrical parameter and the spatial coordinate;

(c) applying a first mathematical transformation to the measured electrical signals to obtain a first result, the first result being ~~relatively~~ sensitive to the first electrical parameter and ~~relatively~~ insensitive to the second electrical parameter;

(d) applying a second mathematical transformation to the estimated electrical signals to obtain a second result, the second result being ~~relatively~~ sensitive to the first electrical parameter and ~~relatively~~ insensitive to the second electrical parameter; and

(e) assigning values to the first electrical parameter and the spatial coordinate such that the first result obtained in (c) and the second result obtained in (d) are substantially equal.

56. (Previously Presented) The method of claim 55, wherein the first electrical parameter comprises a resistivity and the second electrical parameter comprises a dielectric constant.

57. (Previously Presented) The method of claim 55, wherein the measured electrical signals comprise an attenuation measurement and a phase shift measurement.

58. (Previously Presented) The method of claim 55, wherein (e) further comprises assigning values to the first electrical parameter in each of the first and second regions.

59. (Previously Presented) The method of claim 55, wherein the first region comprises an invaded zone, the second region comprises essentially virgin formation, and the spatial coordinate comprises a radius of the invaded zone.

60. (Previously Presented) The method of claim 55, wherein (a) further comprises obtaining the plurality of measured electrical signals at each of a plurality of frequencies.

61. (Previously Presented) The method of claim 55, wherein:

(b) further comprises evaluating the model as a function of the second electrical parameter, the second electrical parameter being transformed into a variable that depends on the first electrical parameter.

62. (Currently Amended)) The method of claim 55, wherein:

the first mathematical transformation assumes that ~~each property~~ a real part of the measured electrical signal senses the first and second electrical parameters in different volumes of the subterranean formation.~~; and~~

63. (Currently Amended) The method of claim 55, wherein:

the second mathematical transformation assumes that ~~each property~~ an imaginary part of the estimated electrical signal senses the first and second electrical parameters in different volumes of the subterranean formation.

64. (Currently Amended) The method of claim 55, wherein the first mathematical transformation is ~~substantially~~ identical to the second mathematical transformation.

65. (Currently Amended) The method of claim 55, wherein a conductivity and a dielectric constant are independent of one another ~~no dielectric assumption is made~~ in the first transformation.

66. (Currently Amended) A method for estimating (i) at least one of first and second electrical parameters and (ii) a spatial coordinate of a boundary separating first and second regions in a heterogeneous subterranean formation, the method comprising:

(a) obtaining a plurality of measured electrical signals that have penetrated the subterranean formation, the electrical signals representative of properties of the subterranean formation;

(b) evaluating a model to obtain a plurality of estimated electrical signals as a function of the first electrical parameter and the spatial coordinate;

(c) applying a first mathematical transformation to the plurality of measured electrical signals to obtain a first result, the first transformation including a permuted dielectric assumption;

(d) applying a second mathematical transformation to the plurality of estimated electrical signals to obtain a second result, the second mathematical transformation including a permuted dielectric assumption; and

(e) assigning values to the first electrical parameter and the spatial coordinate such that the first result obtained in (c) and the second result obtained in (d) are substantially equal.

67. (Currently Amended) The method of claim 66, wherein the first mathematical transformation is ~~substantially~~ identical to the second mathematical transformation.

68. (Previously Presented) The method of claim 66, wherein the first electrical parameter comprises a resistivity and the second electrical parameter comprises a dielectric constant.

69. (Previously Presented) The method of claim 66, wherein the plurality of electrical signals comprises an attenuation measurement and a phase shift measurement.

70. (Previously Presented) The method of claim 66, wherein the first result is selected from the group consisting of a phase resistivity and an attenuation resistivity.

71. (Previously Presented) The method of claim 66, wherein:

(c) further comprises applying a third mathematical transformation to the plurality of electrical signal to obtain a third result, the third mathematical transformation including a dielectric assumption; and

(d) further comprises applying a fourth mathematical transformation to the plurality of estimated electrical signals to obtain a fourth result, the fourth mathematical transformation including a dielectric assumption.

72. (Previously Presented) The method of claim 71, wherein the first electrical parameter and the spatial coordinate are assigned in (e) such that the first result obtained in

(c) and the second result obtained in (d) are substantially equal and the third result obtained in (c) and the fourth result obtained in (d) are substantially equal.

73. (Previously Presented) The method of claim 71, wherein the third and fourth mathematical transformations include a permuted dielectric assumption.

74. (Previously Presented) The method of claim 66, wherein (a) further comprises obtaining the plurality of measured electrical signals at each of a plurality of frequencies.

75. (Previously Presented) The method of claim 66, wherein (e) further comprises assigning values to the first electrical parameter in each of the first and second regions.

76. (Previously Presented) The method of claim 66, wherein the first region comprises an invaded zone, the second region comprises essentially virgin formation, and the spatial coordinate comprises a radius of the invaded zone.